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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,998	07/30/2002	Hideki Hayashi	MTS -3326US	5820
7590	06/14/2004		EXAMINER	
Allan Ratner			LAVARIAS, ARNEL C	
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PO Box 980			ART UNIT	PAPER NUMBER
Valley Forge, PA 19482-0980			2872	

DATE MAILED: 06/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/089,998	HAYASHI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Arnel C. Lavaras	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspond nc address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 4/19/04, 1/10/03, 8/23/02, 7/30/02, 4/5/02.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-22 is/are pending in the application.
  - 4a) Of the above claim(s) 1-13 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 14-22 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 05 April 2002 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>1/03, 8/02, 4/02</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Species 5, Claims 14-22, in the reply filed on 4/19/04 is acknowledged.
2. Claims 1-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 4/19/04.

***Response to Amendment***

3. The amendments to the specification of the disclosure in the submission dated 7/30/02 is acknowledged and accepted.
4. The amendments to Claims 11 and 20 in the submission dated 7/30/02 is acknowledged and accepted.

***Priority***

5. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Information Disclosure Statement***

6. The references to U.S. Patent No. 6052355, EP0874359, and EP0865037 have been lined through in the PTO-1449 of 1/10/03 since these are duplicated from previously submitted Information Disclosure Statements.

***Drawings***

7. The drawings were received on 4/5/02. These drawings are acceptable.

***Specification***

8. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Objections***

9. Claims 15-22 are objected to because of the following informalities:  
  
Claim 15 recites the term 'good wavefront' in lines 4 and 7. Such a term has not been defined in the specification, and it is unclear based on the limitations in the pending claims what 'good wavefront' refers to, or what criteria applies to obtain a 'good wavefront'. For the purposes of examination, the Examiner has taken this to mean 'reduced wavefront aberration'. Claims 16-22 are dependent on Claim 15, and hence inherit the deficiencies of Claim 15.  
  
Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 14-18, 20-22, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Komma et al. (U.S. Patent No. 5815293).

Komma et al. discloses a convex lens (See for example Figures 4a, 4b, 5, 6, 9a, 9b, 19a, 19b, 20) for allowing luminous flux from a first light source to converge to a first optical information recording medium having a predetermined thickness (See for example Figure 4a) and allowing luminous flux from a second light source having a wavelength different from the first light source (See in particular col. 30, line 42-col. 31, line 26 regarding the achromatic function of the convex lens, thus allowing it to perform the same focusing functions over a range of wavelengths without wavelength-dependent focal length errors) to converge to a second optical information recording medium which is thicker than the first optical information recording medium (See for example Figure 4b), characterized in that the lens comprises a central area close to the central axis of the luminous flux (See central area of 26a in Figures 4a, 4b, 6); a peripheral area far from the central axis (See 26b in Figure 4a, 4b, 6); and an intermediate area located midway between the central area and the peripheral area (See edge or grating portions of 26a in Figures 4a, 4b, 6); the luminous flux converging onto the information recording surface

of the first optical information recording medium from the first light source is the luminous flux that has passed through the central area, the intermediate area, and the peripheral area; and the luminous flux converging onto the information recording surface of the second optical information recording medium from the second light source is the luminous flux that has passed through the intermediate area and the central area; and the intermediate area is provided with a diffraction grating (See Figures 4a, 4b; see also grating portions of 26a in Figures 4a, 4b, 6). Komma et al. additionally discloses the diffraction grating of the intermediate area, using diffraction light of the same order, forming luminous flux from the first light source with reduced wavefront aberration with respect to the first optical information medium and forming luminous flux from the second light source with reduced wavefront aberration with respect to the second optical information recording medium (See col. 26, line 42-col. 29, line 59); of the luminous flux converged onto the information recording surface of the second optical information recording medium from the second light source, the phase of the luminous flux that passes through the intermediate area is shifted with respect to the phase of the luminous flux that passes through the central area by an amount less than  $2\pi$  (See col. 26, line 52-col. 27, line 8); an optical head including the convex lens and a photoreception element that receives reflected light from the first optical information recording medium or the second optical information recording medium and converts the reflected light to an electric signal (See for example Figure 21); and an optical information recording medium writing/reading apparatus that includes a circuit (See 58 in Figure 21; See also Figures 35, 36, 60, 61, 62, 64) that distinguished the first optical information recording surface

from the second information recording surface and selectively reads information from the electric signal, the apparatus converging luminous flux on either recording medium, receiving reflected light, converting the reflected light, converging the luminous flux that passed through the central area and the peripheral area of the lens onto the first optical information recording medium, and converging the luminous flux that passed through the intermediate area and the central area of the lens onto the second optical information recording medium (See Figure 21).

12. Claims 14-15, 20/14, 20/15, 21-22, as best understood, are rejected under 35 U.S.C. 102(a) as being anticipated by Kojima (JP2000-028917A).

Kojima discloses a convex lens (See for example 16 in Figures 1-2, 5-6) for allowing luminous flux from a first light source to converge to a first optical information recording medium having a predetermined thickness (See for example 20 in Figures 1-2, 5-6) and allowing luminous flux from a second light source having a wavelength different from the first light source (See in particular 111, 112 in Figure 6) to converge to a second optical information recording medium which is thicker than the first optical information recording medium (See for example 16 in Figures 1, 5-6), characterized in that the lens comprises a central area close to the central axis of the luminous flux (See Sd1 in Figure 1); a peripheral area far from the central axis (See Sd3 in Figure 1); and an intermediate area located midway between the central area and the peripheral area (See Sd2 in Figure 1); the luminous flux converging onto the information recording surface of the first optical information recording medium from the first light source is the luminous flux that has passed through the central area, the intermediate area, and the peripheral area; and the

luminous flux converging onto the information recording surface of the second optical information recording medium from the second light source is the luminous flux that has passed through the intermediate area and the central area (See Figures 1-2); and the intermediate area is provided with a diffraction grating (See Sd2 in Figure 1). Kojima additionally discloses an optical head including the convex lens and a photoreception element that receives reflected light from the first optical information recording medium or the second optical information recording medium and converts the reflected light to an electric signal (See for example Figures 5-6); and an optical information recording medium writing/reading apparatus that includes a circuit (See 15, 16 in Figures 5-6; See also Paragraphs 0013-0016) that distinguished the first optical information recording surface from the second information recording surface and selectively reads information from the electric signal, the apparatus converging luminous flux on either recording medium, receiving reflected light, converting the reflected light, converging the luminous flux that passed through the central area and the peripheral area of the lens onto the first optical information recording medium, and converging the luminous flux that passed through the intermediate area and the central area of the lens onto the second optical information recording medium (See Figures 1-2, 5-6). Kojima additionally discloses the diffraction grating of the intermediate area, using diffraction light of the same order, forming luminous flux from the first light source with reduced wavefront aberration with respect to the first optical information medium and forming luminous flux from the second light source with reduced wavefront aberration with respect to the second optical

information recording medium (See entire document, particular Paragraphs 0013-0021, 0026-0032, 0036-0039)

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
14. Claim 19, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Komma et al.

Komma et al. discloses the invention as set forth above in Claims 14-18, except for a diffraction grating being provided in the peripheral area far from the central axis. However, Komma et al. additionally teaches second embodiment wherein the peripheral area of the convex lens (See for example Figures 10a, 10b, 15a, 15b, 15c, 16a, 16b, 19a, 19b, 20) are also disposed with a diffraction grating (See 32 in Figures 10a, 10b, 15a, 15b). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a diffraction grating being provided in the peripheral area far from the central axis in the convex lens of Komma et al., to control the transmission efficiency of the lens.
15. Claims 16-18, 20/16, 20/17, 20/18, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima in view of Komma et al.

Kojima discloses the invention as set forth above in Claims 14-15, except for the luminous flux converged onto the information recording surface of the second optical information recording medium from the second light source, the phase of the luminous flux that passes through the intermediate area is shifted with respect to the phase of the luminous flux that passes through the central area by an amount as recited in Claims 17 or 18. However, Komma et al. teaches that a convex lens (See for example Figures 4a, 4b, 5, 6, 9a, 9b, 19a, 19b, 20) for allowing luminous flux from a first light source to converge to a first optical information recording medium having a predetermined thickness (See for example Figure 4a) and allowing luminous flux from a second light source having a wavelength different from the first light source (See in particular col. 30, line 42-col. 31, line 26 regarding the achromatic function of the convex lens, thus allowing it to perform the same focusing functions over a range of wavelengths without wavelength-dependent focal length errors) to converge to a second optical information recording medium which is thicker than the first optical information recording medium, wherein an intermediate area of the convex lens is provided with a diffraction grating (See Figures 4a, 4b; see also grating portions of 26a in Figures 4a, 4b, 6). Further, Komma et al. teaches that of the luminous flux converged onto the information recording surface of the second optical information recording medium from the second light source, the phase of the luminous flux that passes through the intermediate area is shifted with respect to the phase of the luminous flux that passes through the central area by an amount less than  $2\pi$  (See col. 26; line 52-col. 27, line 8). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have

the phase of the luminous flux that passes through the intermediate area be shifted with respect to the phase of the luminous flux that passes through the central area by an amount as recited in Claims 17 or 18, as taught by Komma et al., in the convex lens of Kojima, to allow sufficient transmission of both zero order and first order light through the transmissive diffractive optical element, instead of only in the first order.

16. Claim 19, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima in view of Komma et al.

Kojima discloses the invention as set forth above in Claims 14-18, except for a diffraction grating being provided in the peripheral area far from the central axis. However, Komma et al. further teaches second embodiment wherein the peripheral area of the convex lens (See for example Figures 10a, 10b, 15a, 15b, 15c, 16a, 16b, 19a, 19b, 20) are also disposed with a diffraction grating (See 32 in Figures 10a, 10b, 15a, 15b). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a diffraction grating being provided in the peripheral area far from the central axis, as further taught by Komma et al., in the convex lens of Kojima in view of Komma et al., to control the transmission efficiency of the lens.

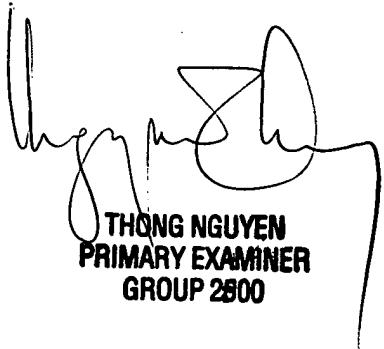
17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 8:30 AM - 5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2872

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Arnel C. Lavarias  
6/8/04

  
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